

PASPALUM IN NICARAGUA

Frank C. Seymour¹

Because species are so frequently added to the known flora of Nicaragua, a treatment of all the species of Central America is desirable. Such a study of Grasses was published by Hitchcock in 1930, but a number of new species have been discovered in the intervening 45 years and the known ranges of species have been extended.

This article deals primarily with Paspalum in Nicaragua but also briefly with other species of Central America to facilitate the recognition of species not previously known in Nicaragua.

I wish to express my appreciation to the following persons and institutions for the privilege of examining specimens in their herbaria. Dr. Reed C. Rollins, Director of the Gray Herbarium. Dr. Richard A. Howard, Director of the Arnold Arboretum. Dr. Lyman B. Smith and Dr. David B. Lellinger of the United States National Herbarium. Dr. Willard W. Payne, Chairman of the Department of Botany of the University of Florida. Dr. Daniel B. Ward, Director of the Herbarium of the University of Florida.

The genus Paspalum L. in the subfamily Panicoideae may be described briefly as follows. Spikelets in spike-like racemes, flat on one side, convex on the other side, on very short pedicels, almost sessile, often in pairs, the convex side (covered by fertile lemma) toward the axis (rachis); lower (first) glume usually wanting, the upper (second) glume also sometimes wanting. Upper (second) glume and sterile lemma about equal. Fertile lemma usually obtuse, margins inrolled. Racemes 1 to many, at or near summit of stem. Herbs.

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ARTIFICIAL KEY TO SPECIES OF PASPALUM
known to occur in Central America.

- A. Spikelets with wide fringed wing, in pairs, 2.2-2.3 mm long (excluding wing), without long hairs; racemes 3-8, lower ones 3-8 cm long 74. P. fimbriatum HBK.
- A. Spikelets without fringed wing, if winged, wing entire B.
- B. Axis of racemes winged; wing 1.5-3(-7)mm wide; racemes 1-many C. cp. p. 4
- C. Spikelets glabrous, or hairs short or appressed; racemes 3-many D. cp. p. 3
- D. Spikelets in pairs, 2-3 mm long; axis of racemes 1-2 mm wide E.
- E. Fruit pale; spikelets stained with purple, longer than wide, obovate; axis of racemes 1.5-2 mm wide; perennial F.
- F. Racemes 3-10, lower ones 1.5-5 cm long; spikelets 2-2.3 mm long, acute, glabrous; axis of panicle flexuous 16. P. lividum Trin.
- F. Racemes 9-20, lower ones 5-7 cm long; spikelets 2.8-3 mm long, obtuse, sparsely hairy to almost glabrous; axis of panicle stiff, straight 17. P. tinctorum Chase
- E. Fruit dark; spikelets about as wide as long; annual G.
- G. Racemes 2-3, 2-4 cm long; blades 5-10 mm wide, 8-15 cm long, long-hairy; spikelets 2.2-3 mm long; glume appressed-hairy to glabrous; axis of racemes 1-2 mm wide 70. P. convexum H. & B.
- G. Racemes 4-12, 4-7 cm long; blades 8-10 mm wide, 10-40 cm long, glabrous or hairy; spikelets 2-2.2 mm long; glume glabrous; axis of racemes 2-2.5 mm wide 71. P. Boscianum Flügge
- D. Spikelets usually not in pairs, 1.5-4.5 mm long, acute, elliptic; creeping perennial H.
- H. Racemes 2(-5), arising at same point; spikelets 2.5-4.5 mm long, not in pairs or rarely some in pairs at middle of racemes I.
- I. Spikelets glabrous, 3-4.5 mm long 14. P. vaginatum Sw.
- I. Spikelets minutely hairy on glume, 2.5-3.5 mm long 15. P. distichum L.
- H. Racemes 3-many, not arising from same point J.

- J. Spikelets 1.5-2 mm long; racemes 20-many K.
- K. Axis of racemes 1.5 mm wide, extending beyond acute spikelets; sheaths of floating branches inflated, flask-shaped; perennial . . . 9. P. repens Berg
- K. Axis of racemes 2 mm wide, extending 2-3 mm beyond obtuse spikelets; sheaths not inflated; plant scabrous throughout; annual 12. P. scabrum Scribner
- J. Spikelets 2.1-3.5 mm long; L.
- L. Racemes falling entire, 3-20, lower ones 1-4 cm long; lower glume lacking; spikelets 2.1-2.5 mm long; annual M.
- M. Upper glume present; racemes 3-12, 1-3 cm long . . . 10. P. prostratum Scribner & Merrill
- M. Upper glume lacking; racemes 8-20, 2-4 cm long; spikelets and fruit white 11. P. candidum (H. & B.) Kunth
- L. Racemes persistent on axis, 3-10, lower ones 3.5-15 cm long; spikelets 3-3.5 mm long N.
- N. Blades 5-12 mm wide; spikelets 3.5 mm long, not in pairs; racemes 3-5, 3.5-7 cm long; perennial 8. P. acuminatum Raddi
- N. Blades 25-30 mm wide; spikelets 3 mm long, sometimes in pairs; racemes 4-10, 5-15 cm long; annual 13. P. crassum Chase
- C. Spikelets clothed with long silky hairs or conspicuously fringed with long hairs; racemes 1-12 O. cp. p. 2
- O. Spikelets 4.5-6 mm long, not in pairs; sterile lemma fringed with long hairs; racemes 1-3 P.
- P. Axis of racemes narrower than spikelets, 1.8-2.3 mm wide; glume heart-shaped at base, widely winged; racemes 2, rarely 1 or 3 6. P. pectinatum Nees
- P. Axis of racemes wider than spikelets, 4.5-5 mm wide; glume not heart-shaped, not winged; racemes 2 or 3 7. P. contractum Pilger
- O. Spikelets 2.5-3 mm long; glume not winged; racemes 1-12 Q.
- Q. Axis of racemes brightly colored, margins golden to rufous; spikelets not in pairs R.
- R. Stem unbranched; axis of racemes 5-7 mm wide; spikelets 3 mm long, excluding hairs; racemes 1 or 2 1. P. stellatum H. & B.
- R. Stem branching; axis of racemes 3-4 mm wide; spikelets 2.5 mm long, excluding hairs; racemes 2-7 on main stem 2. P. heterotrichon Trin.

- Q. Axis of racemes dull-greenish, purplish or brown; spikelets in pairs or not in pairs, varying within species; stem branching S.
- S. Axis of racemes 4-5 mm wide; stems robust, clambering; racemes usually more than 8; spikelets 2.5 mm long 3. P. trachycoleon Steudel
- S. Axis of racemes 2-3 mm wide; stems erect or ascending, not robust and clambering T.
- T. Blades not ciliate, those of primary stem 3-7 mm wide; fringing hairs of spikelet very unequal; spikelets in pairs; blades 3-7 mm wide; racemes 2 or 3 4. P. cymbiforme Fourn.
- T. Blades papillose-ciliate, mostly 8-12 mm wide; fringing hairs of spikelets about equal; spikelets in pairs or solitary; blades 5-15 mm wide; racemes 2-5 5. P. Humboldtianum Flügge
- B. Axis of racemes not winged, 0.5-1.5 mm wide; racemes 1-many U. cp. p. 2
- U. Spikelets 0.8-2 mm long V. cp. p. 7
- V. Upper glume as well as lower lacking; spikelets 1.7-2 mm long; blades becoming involute; racemes 1-9, usually 2-5 W.
- W. Pedicels with long stiff golden hairs; hairs longer than spikelets; spikelets in pairs, 1.7 mm long sparsely hairy or glabrous; blades 3-7 mm wide, glabrous 72. P. Gardnerianum Nees
- W. Pedicels glabrous; spikelets not in pairs, glabrous, 1.7-2 mm long; blades 1.5-4 mm wide, pilose 73. P. pulchellum Kunth
- V. Upper glume present; spikelets 0.8-2 mm long X.
- X. Spikelets in pairs Y. cp. p. 6
- Y. Panicles both terminal and axillary, 1-4 on a peduncle; spikelets 1.7-2.1 mm long; sheaths keeled Z.
- Z. Stems erect to widely spreading, not rooting at nodes Aa.
- Aa. Blades 7-20 mm wide, mostly more than 8 mm wide; spikelets mostly 2 mm long, rounded at tip . . 23. P. ciliatifolium Mx.
- Aa. Blades not more than 8 mm wide; spikelets 1.8-1.9 mm long, slightly pointed 24. P. propinquum Nash
- Z. Stems rooting at lower nodes; blades 5-15 mm wide; spikelets 1.7-2.1 mm long, glabrous Ab.

- Ab. Lower glume about $1/5$ as long as spikelet; upper glume $1/2$ as long as spikelet; racemes 1.1-1.5 cm long 25. P. decumbens Sw.
- Ab. Lower glume rarely present; upper glume $3/4$ as long as spikelet; racemes 1-4, 2-6 cm long 26. P. nutans Lam.
- Y. Panicles terminal on primary stems or leafy branches, no truly axillary racemes; racemes 2-many; spikelets 1.3-1.9 mm long Ac. cp. p. 4
- Ac. Spikelets glabrous, elliptic to widely ovate; racemes 1.2-6 cm long Ad.
- Ad. Spikelets 1.6-1.9 mm long, not spotted with black; blades flat, longest ones 6-10 mm wide, softly hairy; racemes 3-13, commonly 5 or 6; perennial 40. P. squamulatum Fourn.
- Ad. Spikelets 1-1.1 mm long, spotted with black; blades folded, 1.5-2 mm wide, sparsely hairy toward base; racemes 1-4, commonly 2; annual 47. P. pictum Ekman
- Ac. Spikelets hairy Ae.
- Ae. Spikelets obovate or elliptic Af.
- Af. Spikelets 1.2-1.4 mm long; glume hairy Ag.
- Ag. Racemes 1-2(-3), 1-5.5 cm long; glume not glandular; blades 1.5-3 mm wide; annual 48. P. clavuliferum Wright
- Ag. Racemes 2-12, commonly 3-8, 2-8 cm long; glume glandular-hairy; blades 3-14 mm wide; perennial 43. P. Blodgettii Chapm.
- Af. Spikelets 1.5-2 mm long, elliptic, not glandular Ah.
- Ah. Blades velvety-hairy above and beneath; spikelets densely hairy, 1.9-2.1 mm long; blades 8-21 mm wide; racemes usually 5-10 35. P. tenellum Willd.
- Ah. Blades sparsely hairy to glabrous; spikelets 1.5-1.8 mm long Ai.
- Ai. Racemes 2-6, usually 3-5, 3.5-6 cm long; spikelets sparsely appressed-hairy to almost glabrous; blades 4-10 mm wide; perennial 44. P. caespitosum Flügge
- Ai. Racemes 6-35, 5-22 cm long; spikelets more densely hairy; hairs appressed to spreading; blades 6-20 mm wide; annual 51. P. microstachyum Presl
- Ae. Spikelets almost orbicular, 1.3-1.9 mm long; blades 8-20 mm wide; racemes 5-many Aj.

- Aj. Spikelets 1.7-1.9 mm long, not densely crowded; racemes 5-13, lower ones 3-7 cm long
 41. P. lentiginosum Presl
- Aj. Spikelets 1.3-1.4 mm long, usually densely crowded; racemes 7-60, lower ones 5-10 cm long; stem sometimes rooting at nodes 42. P. paniculatum L.
- X. Spikelets not in pairs Ak. cp. p. 4
- Ak. Spikelets almost orbicular, or obovate, 1-1.8 mm long; racemes 1-7; blades 1.5-9 mm wide Al.
- Al. Mature fruit straw-colored; stems tufted, branching but not rooting at nodes; spikelets about 1.3 mm long, usually beaded with globular hairs at least near margin; racemes 2, rarely 1 or 3, 2-4 cm long; blades 1.5-2.5 mm wide; annual . 46. P. multicaule Poiret
- Al. Mature fruit reddish; racemes 2-7, terminal on primary stems or leafy branches, none truly axillary; spikelets glabrous or nearly so; blades 2-9 mm wide; perennial Am.
- Am. Blades 1-6 cm long; spikelets 1-1.1 mm long; racemes 2-7, 0.6-2.3 cm long; plant stoloniferous .
 52. P. orbiculatum Poiret
- Am. Blades 5-13 cm long; spikelets 1.7-1.8 mm long; racemes 2 or 3, 1.5-4 cm long; plant rooting at nodes 54. P. Hitchcockii Chase
- Ak. Spikelets elliptic or narrowly ovate, 0.8-1.8 mm long; racemes terminal on primary stems or leafy branches, none truly axillary An.
- An. Spikelets 0.8 mm long; racemes 2-4, lower ones 5-25 mm long; blades 1-2 mm wide, 1.5-6.5 cm long, hairy on both surfaces; hairs 4-5 mm long; annual . .
 49. P. parviflorum Rohde
- An. Spikelets 1.4-2 mm long; racemes 2-many; mature fruit pale; perennial Ao.
- Ao. Spikelets ciliate with long fine hairs on margin of glume; racemes 2, arising from same point, 4-15 cm long; stolons commonly present
 55. P. conjugatum Berg
- Ao. Spikelets glabrous or nearly so; racemes 2-many Ap.
- Ap. Longest blades 12-15 mm wide, scabrous; stem aquatic, submersed, rooting at lower nodes, much branched; spikelets 1.4-2 mm long; racemes many, 3-5(-9) cm long.
 9. P. repens Berg

- Ap. Longest blades 2-6 mm wide; spikelets 1.5-1.6 mm long; stems tufted, creeping, forming mats Aq.
- Aq. Blades somewhat papillose-pilose; nodes bearded with ascending hairs; racemes 3 or 4, 1.5-4 cm long 50. P. Standleyi Chase
- Aq. Blades glabrous or nearly so; nodes glabrous or sparsely appressed-hairy; mature fruit reddish; racemes 2-8 53. P. Jiminezii Chase
- U. Spikelets 2-5 mm long; perennial Ar. cp. p. 4
- Ar. Racemes 2, arising from same point or nearly so, at summit of stem, that is, conjugate, rarely a third raceme below; spikelets not in pairs except sometimes in P. distichum As.
- As. Spikelets almost orbicular, glabrous, 2.5 mm long, marked with reddish lines or dashes; stem 55-65 cm tall; blades papillose-pilose 21. P. serpentinum Steudel
- As. Spikelets elliptic, or ovate to obovate, 2-4.5 mm long, not marked with reddish At.
- At. Spikelets ovate to obovate, obtuse, glabrous; racemes 2.5-12 cm long; blades 3-10 mm wide Au.
- Au. Spikelets 2.5-3.8 mm long 18. P. notatum Flügge
- Au. Spikelets 2-2.5 mm long 19. P. minus Fourn.
- At. Spikelets elliptic to ovate-lanceolate, acute or subacute Au.
- Au. Spikelets glabrous, 3-4.5 mm long; racemes 3-7 cm long Av.
- Av. Blades 1-3 mm wide; spikelets 4-4.5 mm long, scarcely overlapping; stems densely tufted, not creeping . 22. P. lineare Trin.
- Av. Blades 3-8 mm wide; spikelets 3-4.5 mm long, overlapping except lower ones; stems long-creeping 14. P. vaginatum Sw.
- Au. Spikelets minutely hairy on glume, 2.3-3.5 mm long Aw.
- Aw. Spikelets 2.3 mm long, overlapping, barely acute, wide-elliptic; blades 2-3 mm wide; stems tufted . . 20. P. subciliatum Chase
- Aw. Spikelets 2.5-3.5 mm long, scarcely overlapping, acute, ovate-lanceolate; blades 2-6 mm wide; stem widely creeping 15. P. distichum L.
- Ar. Racemes 1-many, not arising from same point Ax.

- Ax. Panicles both terminal and axillary, axillary ones sometimes hidden in sheaths; terminal panicles of 1-15, usually 1-4 racemes; spikelets 2-3 mm long, in pairs; stems erect, tufted; perennial Ay.
- Ay. Lower glume obsolete or minute on primary spikelet of pair, often present on secondary spikelets; spikelets 2.3-2.6 mm long, not spotted; racemes 4-15, 6-14 cm long; blades 10-24 mm wide 32. P. Botterii (Fourn.) Chase
- Ay. Lower glume present on primary spikelet of pair; spikelets spotted; racemes 2-5 on primary peduncle, 4-10 cm long; blades 6-18 mm wide Az.
- Az. Spikelets sparsely hairy, 2.2-2.6(-2.8) mm long; lower glume of secondary spikelet small 30. P. Langei (Fourn.) Nash
- Az. Spikelets densely hairy, 2.9-3.2 mm long; lower glume of secondary spikelet 1/5 to 2/3 as long as spikelet 31. P. variabile (Fourn.) Nash
- Ax. Panicles terminal on primary stems or leafy branches, none truly axillary Ba.
- Ba. Spikelets 4-5 mm long, not in pairs; racemes 7-30, 7-17 cm long; blades glabrous or hairy, 12-30 mm wide; fruit light-brown 58. P. fasciculatum Willd.
- Ba. Spikelets 2-3.9 mm long Bb.
- Bb. Mature fruit dark-brown or purple; spikelets 2-3 mm long; perennial Bc. cp. p. 9
- Bc. Spikelets mostly not in pairs, 2-2.3 mm long; racemes 2-6, 2-7 cm long; blades at least sparsely pilose above, 3-10 mm, commonly 5-7 mm wide 69. P. centrale Chase
- Bc. Spikelets in pairs Bd.
- Bd. Spikelets fringed along margin at least near tip, with silky hairs, 2-3 mm long; blades 10-25 (-30) mm wide; racemes 6-16(-20), 7-15(-20) cm long Be.
- Be. Axis of racemes with long stiff hairs; spikelets 1.8-2.3(-3) mm wide, hairy only on margin near tip; blades long-hirsute at base; racemes 10-16 59. P. virgatum L.
- Be. Axis of racemes without long stiff hairs; spikelets 1.6-1.8 mm wide; glume and sometimes sterile lemma hairy on back; blades finely hairy above 60. P. conspersum Schrader
- Bd. Spikelets not fringed; blades 3-10 mm wide Bf.

- Bf. Blades folded, at least at base, 10-50 cm long; racemes 2-19, commonly 3-10, 2-10 cm long; spikelets 2.1-3 mm long; sterile lemma cross-wrinkled; perennial 68. P. plicatulum Mx.
- Bf. Blades flat, 8-15 cm long; racemes 2-3, 2-4 cm long; spikelets 2.2-3 mm long; glume appressed-hairy to glabrous; sterile lemma not cross-wrinkled; annual 70. P. convexum H. & B.
- Bb. Mature fruit pale; spikelets in pairs except P. saccharoides, 2-3.9 mm long Bg. cp. p. 8
- Bg. Leaves velvety-hairy throughout; blades 2-20 mm wide; racemes 3-17, 2-8 cm long; spikelets 1.4-2.1 mm long, densely hairy, purplish 35. P. tenellum Willd.
- Bg. Leaves not velvety-hairy Bh.
- Bh. Marginal hairs of spikelet 1-3 mm long; spikelets conspicuously fringed Bi.
- Bi. Spikelets acuminate, not in pairs; racemes 30-50, drooping, 15-30 cm long 75. P. saccharoides Nees
- Bi. Spikelets acute, in pairs; racemes 3-18(-25), drooping to ascending; lower ones 4-14 cm long Bj.
- Bj. Racemes 2-11, usually 3-5, 4-11 cm long, not crowded; spikelets 2.8-3.8 mm long; stems curved or decumbent at base 56. P. dilatatum Poirlet
- Bj. Racemes 6-25, usually 12-18, 7-14 cm long; spikelets 2-3 mm long; stems erect 57. P. Urvillei Steudel
- Bh. Marginal hairs of spikelet short or none; if any, 0.1-0.3 mm long Bk.
- Bk. Spikelets 3.5-3.9 mm long; blades folded at base, 14-18 mm wide, 30-75 cm long 62. P. acutum Chase
- Bk. Spikelets 1.4-3 mm long Bl.
- Bl. Spikelets glabrous, not hairy on surfaces or margin Bm. cp. p. 10
- Bm. Racemes 1-6 Bn. cp. p. 10
- Bn. Upper glume and sterile lemma covering fruit; lower glume lacking; spikelets elliptic; blades 2-6 mm wide 38. P. ligulare Nees
- Bn. Upper glume shorter than fruit exposing it at tip; lower glume often present especially on secondary spikelet of pair Bo.

- Bo. Nodes glabrous; spikelets 2.1-2.5 mm long, often in pairs, obtuse, mostly glabrous; lower glume usually minute; racemes 2-4 or 1, 3-7.5 cm long 29. P. adoperiens (Fourn.) Chase
- Bo. Nodes, at least the lower, hairy; lower glume commonly well developed; spikelets 2.6-3 mm long Bp.
- Bp. Racemes 2-3; blades puberulent above and beneath; lower glume absent from primary spikelet 27. P. Peckii F. T. Hubb.
- Bp. Raceme 1; blades densely pilose above and beneath 28. P. pilosum Lam.
- Bm. Racemes 9-100 or more Bq. cp. p. 9
- Bq. Spikelets ovate-elliptic, commonly leaden-purplish; racemes 9-25, usually 12-18; blades folded at base, 5-10(-14) mm wide; spikelets 2.5-2.7 mm long 64. P. arundinaceum Poiret
- Bq. Spikelets almost orbicular, crowded, glabrous, 1.9-2.4 mm long; axis of racemes ciliate Br.
- Br. Panicle not pyramidal; racemes rarely more than 50, 6-16 cm long; glume and sterile lemma firm in texture 65. P. millegrana Schrader
- Br. Panicle elongate-pyramidal; racemes commonly more than 70, short and crowded at summit, lower ones 5-9 cm long; glume and sterile lemma fragile 66. P. densum Poiret
- Bl. Spikelets hairy, at least on margin, sometimes minutely so, elliptic or obovate, 2-3 mm long; perennial Bs.
- Bs. Racemes 2-3, 4-6.5 cm long; spikelets 2-2.1 mm long; glume obscurely hairy; blades 6-10 mm wide 45. P. umbratile Chase
- Bs. Racemes 3-90, commonly 4-15, 4-14(-18) cm long; fruit straw-colored or pale Bt.
- Bt. Racemes 2-7 cm long; hairs of spikelets often minute, appressed; spikelets 2.1-2.3 mm long Bu.
- Bu. Glume papillose-hairy, speckled or blotched with brownish-purple; glume and sterile lemma almost equal, barely or scarcely covering fruit; blades 7-15 mm wide, glabrous to sparsely pilose 36. P. jaliscaum Chase
- Bu. Glume minutely appressed-hairy Bv.
- Bv. Glume and sterile lemma equal, covering fruit, not mottled with purple; blades 10-25 mm wide, papillose-pilose throughout 39. P. costaricense Mez
- Bv. Glume slightly shorter than fruit; sterile lemma equaling fruit; glume and sterile lemma

- brown mottled with purple; blades 7-15 mm wide, papillose-pilose throughout 37. P. Tonduzii Mez
- Bt. Racemes 6-14(-18) cm long Bw.
- Bw. Glume and sterile lemma unequal; glume shorter than fruit, exposing it at tip; sterile lemma equaling fruit covering it; racemes 2-15 Bx.
- Bx. Spikelets 2 mm long; racemes 2-11, up to 10 cm long; blades 7-15 mm wide; axillary panicles none 33. P. corcovadense Raddi
- Bx. Spikelets 2, 3-2.6 mm long; racemes 4-15, 6-14 cm long, without long hairs in acils; lower glume usually present on secondary spikelet only; blades 10-24 mm wide; axillary panicles often hidden in sheaths 32. P. Botterii (Fourn.) Chase
- Bw. Glume and sterile lemma equal, covering fruit; glume finely hairy on margin at least toward tip By.
- By. Spikelets 2.5-3 mm long, minutely hairy, brownish or purplish; blades 15-25 mm wide; axis of racemes ciliate not only at base, its hairs 5-8 mm long; racemes 25-90, usually 40-80, 8-18 cm, usually 12-15 cm long 63. P. plenum Chase
- By. Spikelets 2-2.5 mm long; lower racemes 6-12 cm long; blades (8-)10-23 mm wide Bz.
- Bz. Stem 45-55 cm or more tall, branching; nodes bearded; blades 10-18 mm wide, 10-15 cm long; racemes 9, 6-9 cm long . . 60. P. hispidum Swallen
- Bz. Stem 1-4 m tall; blades 8-23 mm wide; racemes 6-12 cm long Ca.
- Ca. Stem much branched; glume finely glandular-hairy; blades 12-32 cm long; racemes 10-45; glume and sterile lemma commonly marked with purple 57. P. coryphaeum Trin.
- Ca. Stem unbranched or with few branches; glume silky-hairy on margin and sometimes elsewhere; blades 15-50 cm long; racemes 10-31 34. P. affine Steudel

ANNOTATED LIST OF SPECIES OF PASPALUM
known to occur in Central America.

The order of species follows that by Chase, Agnes. Contr. U. S. Nat. Herb. 28:1-310. 1929, with some additions. Citations of specimens collected by Hitchcock, if no other reference is given, are from the work by Chase, just cited.

1. P. stellatum H. & B. in Flügge Monogr. Pasp. 62. 1810. S. Mexico, Honduras (FLAS), Salvador, Costa Rica, Panama,

Argentina.

2. P. heterotrichon Trin., Gram. Icon. 3: pl. 285. 1831.
Panama, W. I., n. S. A.
3. P. trachycoleon Steudel, Syn. Pl. Glum. 1:28. 1854.
Guatemala, Honduras (FLAS), Salvador, n. S. A.
4. P. cymbiforme Fourn., Mex. Pl. 2:5. 1886.
S. Mexico, Guatemala.
5. P. Humboldtianum Flügge, Monogr. Pasp. 67. 1810.
Mexico, Guatemala, Honduras, Salvador, Costa Rica, Panama
to Argentina.
Nicaragua, Comarca del Cabo, Waspan, 2517 (ENAG).
Dept. Zelaya, San Cristobal, Salas & Taylor 4223 (ENAG).
Dept. Carazo, Jinotepe, Hitchcock 8697.
Without definite locality, Garnier 1962 (GH).
6. P. pectinatum Nees in Trin., Gram. Icon. 1:pl. 117. 1828.
S. Mexico, British Honduras, Honduras, Costa Rica, Panama,
n. S. A.
7. P. contractum Pilger, Bot. Jahrb. Engler 25:709. 1898.
Panama, n. S. A.
8. P. acuminatum Raddi, Agrost. Bras. 25. 1923.
Louisiana, Texas, Guatemala, S. A.
9. P. repens Berg, Act. Helv. Phys. Math. 7:129, pl. 7.
1762. P. fluitans Ell., Bot. S. C. & Ga. 1:109, pl. 6, f. 4.
1816. Guatemala, Salvador, Costa Rica, Panama.
10. P. prostratum Scribner & Merrill, U. S. Dept. Agr. Div.
Agrost. Bull. 24:9. 1900. Costa Rica, Brittonia 23:293. 1971.
11. P. candidum (H. & B.) Kunth, Mem. Mus. Hist. Nat. 2:
68. 1815. Mexico, Guatemala, Honduras (FLAS), Salvador,
Costa Rica, Panama, S. A.
Nicaragua, Dept. Matagalpa, Matagalpa, Seymour 2163 (VT).
Sierra de Managua, Garnier s.n. (GH).
Dept. Carazo, Casa Colorado, Salas & Taylor 3478 (ENAG)
12. P. scabrum Scribner, U. S. Dept. Agr. Div. Agrost.
Bull. 4:36, pl. 3. 1897. Guatemala, Costa Rica, Brittonia 23:
293. 1971.
13. P. crassum Chase, Contr. U. S. Nat. Herb. 17:239.
1913. Salvador.
14. P. vaginatum Sw., Prodr. Veg. Ind. Occ. 21. 1788.
SE. U. S., Mexico, Guatemala, Salvador, Costa Rica, Panama,
W. I., S. A., Orient.
Nicaragua, Dept. Managua, Lake Managua, MHV 7257 (GH).
Managua, Maxon 7337 (US).
Dept. Rivas, San Juan del Sur, Hitchcock 8603.
Without definite locality, Garnier 4419 (GH).
15. P. distichum L., Syst. Nat. ed. 10. 2:855. 1759.
U. S., Mexico, Guatemala, Costa Rica to Argentina, W. I.
Nicaragua, Comarca del Cabo, Puente Pozo Azul, Seymour 5804

- (BM, ENAG, F, GH, MICH, MO, NY, SEY, SMU, UC, WDP).
 Dept. Zelaya, Tamla, Seymour 5983 (SEY).
 Dept. Chontales, Santo Tomas, Seymour 6303 (SEY, SMU).
 16. P. lividum Trin. in Schlecht., Linnaea 26:383. 1854.
 S. U. S., Mexico, Guatemala, Cuba, S. A.
 Nicaragua, Comarca del Cabo, Chemical Plant, Seymour 5564 (SEY).
 Miguel Bikon, Robbins 5876 (SEY).
 Dept. Zelaya, Tamla, Seymour 5986 (SEY).
 Dept. Rio San Juan, San Bartolo, Seymour 6238 (BM, F, GH, MO, SEY, SMU).
 17. P. tinctum Chase, Contr. U. S. Nat. Herb. 28:62. 1929.
 Mexico. To be expected in Guatemala;
 18. P. notatum Flügge, Monogr. Pasp. 106. 1810.
 S. U. S., Mexico, Guatemala, Honduras, Salvador, Costa Rica, Panama, W. I. to Argentina.
 Nicaragua, Dept. Zelaya, El Recreo, Peterson (ENAG).
 Dept. Matagalpa, Matagalpa. Zelaya 2292 (BM, ENAG, F, GH, MO, MSU, NY, SEY, SMU, UC, WDP).
 Dept. Chinandega, Corinto, Hitchcock 8615 (US).
 Dept. Managua, El Kodeo, suna de Managua, Garnier 1504 (GH).
 Managua, Artemio 16 (GH).
 Managua, Seymour 6127 (SEY), 6277 (SEY, SMU).
 Dept. Masaya, Masaya. Hitchcock 8658.
 Dept. Rio San Juan, San Bartolo. Seymour 6144 (SEY).
 19. P. minus Fourn., Mex. Pl. 2:6. 1886.
 Texas, Mexico, Guatemala, Costa Rica, Panama, W. I., S. A.
 Nicaragua, Comarca del Cabo, Waspan, 2536 (ENAG).
 Dept. Rio San Juan, San Juan del Norte, Oersted 14107 (Contr. U. S. Nat. Herb. 28:67. 1929.)
 20. P. subciliatum Chase, Journ. Washington Acad. Sci. 17: 144, f. 1. 1927. Panama, Brazil.
 21. P. serpentinum Steudel, Syn. Pl. Glum. 1:22. 1854.
 British Honduras, Trinidad, S. A.
 Nicaragua, Comarca del Cabo, Bihmona. Seymour 5696 (VT).
 22. P. lineare Trin., Gram. Pan. 99. 1826.
 Costa Rica, Cuba, S. A.
 23. P. ciliatifolium Mx., Fl. Bor. Amer. 1:44. 1803.
 U. S., Honduras, Costa Rica (Brittonia 23:302. 1971), Bermuda, Haiti.
 24. P. propinquum Nash, Bull. N. Y. Bot. Gard. 1:291. 1899.
 Fla., Mexico, Honduras, Salvador, Costa Rica, Panama, W. I.
 Very similar to P. ciliatifolium Mx.
 Nicaragua, Comarca del Cabo, Bilwaskarma. Seymour 5856 (SEY).

- Dept. Chinandega, Corinto. Hitchcock 8761.
 Dept. Carazo, Jinotepe. Hitchcock 8684.
25. P. decumbens Sw., Prodr. Veg. Ind. Occ. 22. 1788.
 British Honduras, Guatemala, Costa Rica, Panama, W. I., S. A.
 Nicaragua, Comarca del Cabo, Chemical Plant, Seymour 5563 (VT).
 La Tronquera, Rio Leicus, Molina 14879 (GH),
 15192 (GH).
 Puente Pozo Azul, Seymour 4575 (VT).
 Dept. Zelaya, Bluefields. Seymour 4128 (VT).
 Madregara. Atwood 3216 (MICH).
 Seymour 3257 (BM, ENAG, F, GH, MO,
 NY, SEY, SMU, UC, WDP, WIS).
 Puerto Cabezas. Peterson 6 (ENAG).
 Tamla. Seymour 5984 (VT).
- Dept. Chontales, Santo Domingo. Seymour 3383 (VT).
26. P. nutans Lam., Tab. Encycl. 1:175. 1791.
 Honduras, Salvador, Costa Rica, Panama, W. I., S. A., Africa.
 Nicaragua, Comarca del Cabo, Bilwaskarma. Seymour 4835 (VT).
 Dept. Nueva Segovia, Plan Grande. Seymour 5137 (BM,
 ENAG, F, GH, MO, NY, SEY, SMU, UC, WDP).
27. P. Peckii F. T. Hubb., Proc. Amer. Acad. 49:495.
 1913. British Honduras; type from pine ridge near Manatee
 Lagoon, Peck 71. Known only from type specimen.
28. P. pilosum Lam., Tabl. Encycl. 1:175. 1791.
 Costa Rica, Panama, n. S. A.
 Nicaragua, Comarca del Cabo, Bihmona.
 Seymour 5693 (ENAG, SEY).
 Puente Pozo Azul. Seymour 5802 (GH, MO, SEY).
 Dept. Zelaya, Bluefields. Marshall & Neill 6486 (BM, ENAG,
 F, GH, MO, SEY, SMU, UC).
 Puerto Cabezas. Svenson 4548a (SEY).
 Tamla. Seymour 5968 (SEY),
 5985 (ENAG, GH, MO, SEY).
29. P. adoperiens (Fourn.) Chase, Contr. U. S. Nat. Herb.
 28:102, f. 55. 1929. S. Mexico, Guatemala, Salvador.
30. P. Langei (Fourn.) Nash, N. Amer. Fl. 17:179. 1912.
 Louisiana, Texas, Fla. (FLAS), Mexico (FLAS), Salvador,
 Costa Rica, Cuba, Haiti, Venezuela.
 Nicaragua, Dept. Chinandega, Corinto. Hitchcock 8744.
 Dept. Matagalpa, Matagalpa. Seymour 2166 (VT).
 Dept. Masaya, Masaya. Hitchcock 8630.
 Dept. Carazo, Jinotepe. Hitchcock 8681, 8686, 8724.
 Dept. Rivas, San Juan del Sur. Hitchcock 8606.

31. P. variable (Fourn.) Nash, N. Amer. Fl. 17:80. 1912.
Mexico, Costa Rica.
32. P. Botterii (Fourn.) Chase, Journ. Washington Acad.
Sci. 13:436. 1923.
S. Mexico, Guatemala, Costa Rica (Brittonia 23:302. 1971).
Nicaragua, Dept. Matagalpa, Matagalpa. Zelaya 2304 (BM,
ENAG, F, GH, MICH, MO, MSU, NY, SEY, SMU,
UC, WDP).
Dept. Chontales, Apompua. Seymour 2688 (ENAG, F,
MO, NY, SEY, UC, WDP).
Dept. Managua, Tipitapa. Seymour 3436 (SEY).
Dept. Carazo, Santa Teresa. Atwood 1272 (ENAG, SEY,
SMU); Seymour 1325 (VT).
Dept. Rivas, Rivas, 3904 (ENAG).
Without definite locality, Garnier 1497 (GH).
33. P. corcovadense Raddi, Agrost. Braz. 27. 1823.
S. Mexico, British Honduras, Brazil.
34. P. affine Steudel, Syn. Pl. Glum. 1:24. 1854.
S. Mexico, Guatemala.
35. P. tenellum Willd., Enum. Pl. 89. 1809.
Mexico, Guatemala, Salvador, n. S. A.
36. P. jaliscanum Chase, Contr. U. S. Nat. Herb. 17:240.
1913. Not known in Central America but occurring in Mexico
so near to Guatemala that it is to be expected in Guatemala.
37. P. Tonduzii Mez, Repert. Sp. Nov. Fedde 15:72. 1917.
Costa Rica. Collected only once. So similar to P. jaliscanum
that according to Chase (Contr. U. S. Nat. Herb. 28:15. 1929)
it is doubtful whether P. Tonduzii is a good species.
38. P. ligulare Nees, Agrost. Bras. 60. 1829.
Guatemala, Brazil.
39. P. costaricense Mez, Repert. Sp. Nov. Fedde 15:72.
1917. Guatemala, Honduras (FLAS), Salvador, Costa Rica.
Nicaragua, Dept. Matagalpa, Matagalpa, La Harmonia,
Peterson 74 (ENAG).
40. P. squamulatum Fourn., Mex. Pl. 2:11. 1886.
Spikelets in pairs. Mexico, Guatemala, Costa Rica, Panama.
Nicaragua, Dept. Jinotega, San Rafael del Norte. Miller &
Griscom 143, 144 (Contr. U. S. Nat. Herb. 28:119.
1929).
41. P. lentiginosum Presl, Rel. Haenk. 1:218. 1830.
W. Mexico, Guatemala.
42. P. paniculatum L., Syst. ed. 10, 2:855. 1759.
Mexico, British Honduras, Guatemala (FLAS), Honduras, Sal-
vador, Costa Rica, Panama (FLAS), W. I., S. A., W. Africa,
Antipodes.
Nicaragua, Dept. Zelaya, El Recreo. Peterson 4 (ENAG).

Dept. Chinandega, Corinto. Hitchcock 8613.

Dept. Managua, Zacaton, sierra de Managua.

Garnier A-1235 (GH).

Dept. Rivas, Ameya, Maxon 7143 (Contr. U. S. Nat.

Herb. 28:125. 1929.

San Juan del Sur, Hitchcock 8594.

43. P. Blodgettii Chapman, Fl. South. U. S. 571. 1860.

Spikelets in pairs.

Fla., Yucatan, British Honduras, Honduras, W. I.

44. P. caespitosum Flügge, Monogr. Pasp. 161. 1810.

Spikelets in pairs.

Fla., Yucatan, British Honduras, Guatemala (FLAS), W. I.

45. P. umbratile Chase, Contr. U. S. Nat. Herb. 28:132,
f. 76. 1929. Honduras.

46. P. multicaule Poiret in Lam. Encycl. Suppl. 4:309. 1816.

S. Mexico, British Honduras, Honduras, Costa Rica, Panama,
W. I., n. S. A.

Nicaragua, Dept. Chinandega, San Cristobal. Garnier 1936 (GH).

Dept. Carazo, Casa Colorado. Seymour 552 (GH, SEY, SMU).

47. P. pictum Ekman, Ark. fôr Bot. 10¹⁷:11, pl. 1, f. 6. 1911.
Costa Rica, n. S. A.

48. P. clavuliferum Wright, Anal. Acad. Cienc. Habana 8:
203. 1871. Mexico, Honduras, Costa Rica, Panama, n. S. A.
Nicaragua, Comarca del Cabo, Waspan 2539 (ENAG);

Seymour 3678 (BM, GH, SEY, SMU).

Dept. Zelaya, Puerto Cabezas. Svenson 4546 (VT).

Tamla. Seymour 5980 (BM, ENAG, GH,
MO, SEY, SMU).

Dept. Rio San Juan, San Juan del Norte.

Seymour 5295b (SEY).

49. P. parviflorum Rohde, Flügge, Monogr. Pasp. 98. 1810.
Costa Rica (Brittonia 23:303. 1971), Panama, Porto Rico, n. S. A.

50. P. Standleyi Chase, Journ. Washington Acad. Sci. 17:
146, f. 3. 1927. Costa Rica (Brittonia 23:303. 1971), Panama.

51. P. microstachyum Presl, Rel. Haenk. 1:215. 1830.

Guatemala, Honduras, Salvador, Costa Rica, Panama, n. S. A.
Nicaragua, Sierra de Managua, Garnier A-1256 (GH).

Dept. Managua, Managua. Seymour 741 (F, GH, MO,
SEY, SMU), 6032 (F, MO).

Dept. Masaya, Masaya. Hitchcock 8650.

Dept. Carazo, Jinotepe. Hitchcock 8714.

Dept. Rivas, Omotepe. Levy 1138 (Contr. U. S. Nat.
Herb. 28:155. 1929.

San Juan del Sur. Hitchcock 8602.

Dept. Rio San Juan, San Bartolo. Seymour 6239 (SEY).

52. P. orbiculatum Poiret in Lam., Encycl. 5:32. 1804.
S. Mexico, British Honduras, Guatemala, Honduras, Salvador,
Costa Rica, Panama, W. I., n. S. A.
Nicaragua, Dept. Zelaya,
Punta Masaya, Dudey 657 (SEY, SMU).
Sierra de Managua, Rio Las Nubes, Garnier 1484 (GH).
Dept. Rio San Juan, San Juan del Norte. Seymour 5287
(BM, ENAG, F, GH, SEY, SMU).
Without definite locality, Garnier 4490 (GH).
53. P. Jiminezii Chase, Contr. U. S. Nat. Herb. 28: 159,
f. 101. 1929. Costa Rica; known only from the type collection.
54. P. Hitchcockii Chase, Contr. U. S. Nat. Herb. 28:160,
f. 102. 1929. Guatemala, Salvador, Panama, Colombia, Venezu-
ela.
55. P. conjugatum Berg, Act. Helv. Phys. Math. 7:129,
pl. 8. 1762. Fla. to Texas, Mexico, Central America, W. I.,
S. A.
Nicaragua, Comarca del Cabo, Bancos de Rio Leicus, Molina (GH).
Cororia Bush, Seymour 3762 (BM, SEY).
Waspan. Seymour 3573 (VT).
Dept. Zelaya, Bluefields. Molina 2058 (GH).
Between Rio Grande y Wenkalaya, Molina 2221 (GH).
Braggman's Bluff, Eglesing 288 (GH).
El Recreo, Peterson 3 (ENAG); Standley 19092 (GH).
Nueva Guinea. Nelson 5371 (BM, ENAG, F, GH,
SEY, SMU).
Punta Masaya. Hamblett 673 (B, BM, ENAG, F,
GH, MICH, MO, SEY, SMU).
Punta del Mico. Atwood 4224 (GH, SEY).
Dept. Chinandega, Chinandega. Baker 2012 (GH).
El Viejo. Narvaez 2648 (BM, ENAG, F, GH,
MICH, MO, NY, SEY, SMU, UC, WDP, WIS).
Dept. Jinotega, Jinotega. Seymour 2172 (VT), 2117a (VT).
Dept. Chontales, Muhan. Salas & Taylor 3478 (ENAG).
Dept. Managua, Tipitapa. Seymour 2832 (SEY, SMU).
Without definite locality, Garnier 4382 (GH).
- 55a. P. conjugatum Berg var. pubescens Doell in Mart., Fl.
Bras. 2²:55. 1877. Guatemala, Salvador, Panama.
56. P. dilatatum Poiret in Lam., Encycl. 5:35. 1804.
Dallis Grass. U. S., Guatemala, Salvador, Costa Rica. Intro-
duced from S. A.
57. P. Urvillei Steudel, Syn. Pl. Glum. 1:24. 1854. Vasey
Grass. SE. U. S., Guatemala, Cuba, S. A., Hawaii.
58. P. fasciculatum Willd., Flt'dgge, Monogr. Pasp. 69:1810.
British Honduras, Guatemala (FLAS), Salvador, Panama (FLAS),
W. I., S. A.

- Nicaragua, Dept. Zelaya, El Recreo. Peterson 20 (ENAG).
Macantaca Creek. Allen 6494 (GH).
59. P. virgatum L., Syst. Nat. ed. 10, 2:855. 1759.
Texas, Mexico, British Honduras, Guatemala, Salvador, Costa Rica, Panama, W. I., S. A.
60. P. conspersum Schrader; Schultes, Mant. 2:174. 1817.
S. Mexico, British Honduras, S. A.
Nicaragua, Dept. Matagalpa, Matagalpa, Rio Las Canas.
WMW 24009 (US).
61. P. hispidum Swallen, Contr. U. S. Nat. Herb. 29 (9):
414-415. 1950. Guatemala.
62. P. acutum Chase, Journ. Washington Acad. Sci. 17:146,
f. 4. 1927. Panama, duplicate of type, Killip 4003 (US); Brazil.
63. P. plenum Chase, Contr. U. S. Nat. Herb. 28:202,
f. 122. 1929. Guatemala, Honduras, Costa Rica, Panama,
(FLAS), n. S. A.
Nicaragua, Dept. Zelaya, Corn Is. Atwood 4264 (GH, VT).
64. P. arundinaceum Poiret in Lam., Encycl. Suppl. 4:310.
1816. Guatemala, W. I., n. S. A.
65. P. millegrana Schrader in Schultes, Mant. 2:175. 1824.
E. Mexico, British Honduras (reported), Guatemala, Honduras,
Salvador, W. I., n. S. A.
66. P. densum Poiret in Lam., Encycl. 5:32. 1804.
Panama, W. I., S. A.
67. P. coryphaeum Trin., Gram, Pan. 114. 1826.
British Honduras, Panama, Trinidad, n. S. A.
68. P. plicatulum Mx., Fl. Bor. Amer. 1:45. 1803.
Blades 10-50 cm long. SE. U. S., Guatemala, Honduras, Salvador, Costa Rica, Panama, W. I., S. A.
Nicaragua, Dept. Masaya, Masaya. Hitchcock 8642.
Dept. Carazo, Jinotepe. Hitchcock 8691 (US), 8696 (US).
Dept. Rio San Juan, San Carlos. Atwood 2022 (SEY, SMU).
Without definite locality, Garnier 4489 (GH).
69. P. centrale Chase, Journ. Washington Acad. Sci. 17:145,
f. 2. 1927. Salvador, Costa Rica, Panama.
Nicaragua, Dept. Chinandega, Corinto. Hitchcock 8754.
70. P. convexum H. & B., in Flügge, Monogr. Pasp. 175.
1810. Mexico, Guatemala, Salvador, Cuba, Trinidad, n. S. A.
Nicaragua, Dept. Nueva Segovia, Dipilto. Seymour 6368
(BM, ENAG, F, GH, MO, SEY, SMU).
Dept. Masaya, Masaya. Hitchcock 8659 (US).
Dept. Carazo, Casa Colorado. Dudey 504 (B, ENAG, F,
GH, MICH, MO, MSU, NY, UC, WDP);
Seymour 551 (BM, ENAG, SEY, SMU).
Jinotepe, Hitchcock 8703.
Without definite locality, Garnier 1543 (GH).

71. P. Boscianum Flügge, Monogr. Pasp. 170. 1810.
SE. U. S., Guatemala, Panama, Porto Rico, n. Brazil.
72. P. Gardnerianum Nees, Journ. Bot. Kew Misc. 2:103.
1850. Panama, S. A.
73. P. pulchellum Kunth, Mem. Mus. Hist. Nat. 2:68. 1815.
British Honduras, Guatemala, n. S. A.
Nicaragua, Dept. Zelaya, Puerto Cabezas. Peterson 27
(ENAG); Svenson 4546a (SEY).
74. P. fimbriatum HBK., Nov. Gen. & Sp. 1:93, pl. 28. 1816.
Panama, W. I., n. S. A., Hawaii.
75. P. saccharoides Nees in Trin. Gram. Icon. 1:pl. 107.
1827. Costa Rica, Panama, W. I., n. S. A.

EXCLUDED SPECIES

Paspalum erianthum Nees

Reported in but its occurrence there later denied.

STATISTICAL SUMMARY: number of species of PASPALUM:

Previously known in Nicaragua	23
New to Nicaragua	<u>6</u>
Total known in Nicaragua	29
Known, not in Nicaragua, but in other parts of Central America	<u>44</u>
Total known in Central America	73
Additional species to be expected in Central America	<u>2</u>
Total treated in this article	75

ABBREVIATIONS used in this article which may not be already familiar.

AMN, Atwood, John T., Jr., Steven A. Marshall, and
David A. Neill, collectors

Bth., Bentham

C. & S., Chamisso & Schlechtendal

DHN, Dudgey, David A., R. Bruce Hamblett and
Charles E. Nichols, collectors

ENAG, Herbarium of the Escuela Nacional de Agricultura y
Ganaderia, Managua, Nicaragua

F. T. Hubb., F. Tracy Hubbard

H. & B., Humboldt & Bonpland

H. & C., Hitchcock & Chase

Hk., Hooker

MHV, Maxon, W. R., A. T. Valentine and
A. D. Harvey, collectors

Mx., Michaux, André

R. & P., Ruiz & Pavon

ABBREVIATIONS, cont.

R. & S., Roemer & Schultes

S. A., South America

SEY, Herbarium of Frank C. Seymour

WDP, Herbarium of St. Norbert College, West De Pere, Wis.

W. I., West Indies

WMW, Williams, Louis O., Antonio Molina R.,

and Terua P. Williams, collectors

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article.

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1-390. 1955.

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